

VATLESTRAUMEN (30D)

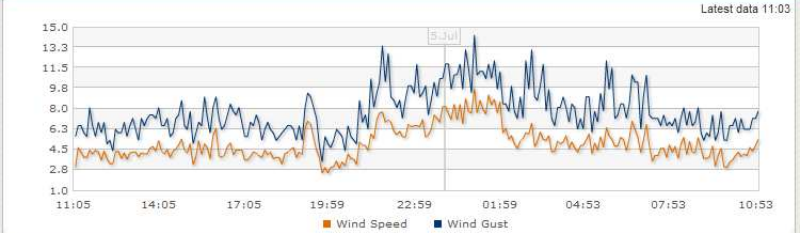
Surface Current Direction



Wind Direction



Wind Speed / Gust (m/s)



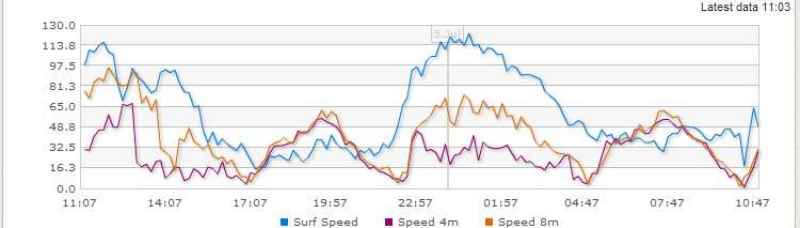
Current Direction 4m Depth



Current Direction 8m Depth



Current Speeds (cm/s)



TD291 AADI GeoView User Manual

GeoView

1st Edition	September 3, 2010
2nd Edition	November 15, 2010
3rd Edition	August 4, 2011
4 th Edition	September 16, 2011

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Introduction

Purpose and scope

The purpose of this document is to give an overview of how to install and how to use GeoView. The technologies in use will also be described.

Glossary

.NET

The Microsoft .NET Framework is a software framework that can be installed on computers running Microsoft Windows operating systems. It includes a large library of coded solutions to common programming problems and a virtual machine that manages the execution of programs written specifically for the framework

Ajax

Ajax (shorthand for Asynchronous JavaScript and XML) is a group of interrelated web development techniques used on the client-side to create interactive web applications. With Ajax, web applications can retrieve data from the server asynchronously in the background without interfering with the display and behaviour of the existing page.

ASP.NET

ASP.NET is a web application framework developed and marketed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

Flash animation

A Flash animation or Flash cartoon is an animated film which is created using Adobe Flash or similar animation software and often distributed in the .swf file format.

HTML

HTML is a simple mark-up language used to create hypertext documents that can be read on any computer.

Hypertext

Hypertext is machine-readable text that is not sequential but is organized so that related items of information are connected

Internet Information Services

Internet Information Services (IIS) - formerly called Internet Information Server - is a set of Internet-based services for servers created by Microsoft for use with Microsoft Windows.

JavaScript

JavaScript is a programming or script language, which can be embedded in Web pages and read by the browser.

MSSQL Server

MSSQL Server is a relational database server software produced by Microsoft.

SQL database

SQL is a database computer language designed for managing data in relational database management systems.

Virtual data types

A virtual data type is a data type derived from one or more other data types.

XML

XML is an acronym for eXtensible Markup Language, a data format used primarily for sharing data

Document overview

CHAPTER 1 gives a short description of GeoView.

CHAPTER 2 describes how to install the system.

CHAPTER 2 describes how to connect to an SQL database from GeoView

CHAPTER 4 describes how to connect to AADI Real-Time Collector

CHAPTER 5 describes how to create a Web page.

CHAPTER 6 describes how to browse the database, and how to define virtual data types.

CHAPTER 7 describes how to export data from the GeoView database.

CHAPTER 8 describes how to set up alarm warnings.

Requirements

Applicable documents

TN327	TN327 AADI GeoView Web Installation for Windows XP
TN328	TN328 AADI GeoView Applications Installation Quick Start
TN329	TN329 AADI GeoView Web Installation for Windows Vista
TN339	TN339 AADI GeoView application description
TN340	TN340 AADI GeoViewAlarm application description
TN344	TN344 AADI GeoViewExport application description

CHAPTER 1 Short description of GeoView

GeoView is a system for displaying data in a web browser. Data can come from sensors and data collectors through the AADI Real-Time Collector. GeoView will receive data and will store the data in an SQL database.

Using Internet Information Server, web pages can be provided for an end user, using HTML, ASP.NET, JavaScript, Ajax, and Flash animations.

GeoView comprises a web page creator. Web pages can be created using building blocks.

GeoView has a database browser included, where details of data types and details of the latest data entries can be inspected.

There are two additional tools available: GeoViewExport for exporting data to a text file, and GeoViewAlarm for giving visual and audible alarms when certain criteria are met.

CHAPTER 2 Installing the system

Detailed instructions on how to install the system are given in two documents.

1. First, the web parts of GeoView should be installed. There are two different descriptions available, one for Windows XP, and another one for Windows Vista and Windows 7. Use either “TN327 AADI GeoView Web Installation for Windows XP” or “TN329 AADI GeoView Web Installation for Windows Vista”. Please follow the instructions carefully.
2. Second, the application parts of GeoView should be installed. Please follow the instructions in “TN328 AADI GeoView Applications Installation Quick Start” carefully. These instructions include installation of Microsoft SQL Express 2005, and installation of AADI Real-Time Collector.

CHAPTER 3 Connecting to an SQL database from GeoView

Start GeoView and wait for its form to appear.

Select the “Settings”-tab. Please enter or inspect the URL to web service provider. It shall be in the form:

“http://%Local Machine%/AADI AaDispDbWebservice/AaDispDb.asmx”.

A suggestion will be made and will normally be correct. Please press the “Add”-button to add the web service to a list of available web services.

Web service connection details

Uri to web service data provider

http://BBIRKELANDW7/AADI AaDispDbWebservice/AaDispDb.asmx

Add

Known AADI web service addresses

http://BBIRKELANDW7/AADI AaDispDbWebservice/AaDispDb.asmx
http://localhost:53491/AaDispDb.asmx

Remove

Select the “AADI Real-Time Collector to AADI GeoView Database” - tab.

At the center one or more URLs to AADI web services are listed. Make sure one or more the web services to be used are checked. Continue to add more web services if more databases are to be updated.

AADI GeoView webservice details

Urls to AADI web services, where data will be added.

☐ http://BBIRKELANDW7/AADI AaDispDbWebservice/AaDispDb.asmx
☒ http://localhost:53491/AaDispDb.asmx

☒ Ping web server to check if remote location is reachable

Ping timeout
120 ms

Test connection to databases

If the AADI GeoView web service is not located in the local machine it can save time to ping the remote machine prior to calling functions in the web service. Check the “Ping web server to check if remote location is reachable” – box to activate ping.

Under the list of web services there is a button: “Test Connection to databases”. Press this button. (If the button is disabled, remove check mark from the “Run forever” checkbox.) If there is no connection to the database, an error message will be given in the lower part of the form. If there is a connection the defined owners will be listed, including a virtual owner: AADI test.

UTC offset (hours)

2

User offset (hours)

0

☐ Start AADI GeoView
with Windows



To the right of the page is shown this computers time offset to UTC time (Coordinated Universal Time). Additional offset can be set in the user offset box. These times are used to make data have local time in the GeoView database.

CHAPTER 4 Connecting to the AADI Real-Time Collector

If GeoView is not running, start GeoView and wait for its form to appear.

Select the “AADI Real-Time Collector to AADI GeoView Database” - tab.

In the top left textbox please enter or inspect the address of an AADI Real-Time Collector Host. It shall be in the form:

“COMPUTER NAME” or ip-address.

If the AADI Real-Time Collector is located at a remote network remove the check mark indicating the AADI Real-Time Collector is located at the local network.

A suggestion will be made and will normally be correct. Proceed to enter or inspect the port to be used when connecting to AADI Real-Time Collector. (The AADI Real-Time Collector will use port 51478 if this has not been changed from within the Real-Time Collector application.) Press the button labeled “Add RTC Host to list”.

If data are expected from more sources, please enter addresses and ports of more AADI Real-Time collector hosts.

Click the button labeled “Retrieve messages from the AADI Real-Time Collector once”, or check the “Retrieve messages from the AADI Real-Time Collector constantly” checkbox to see if a connection can be made. If things go well, the last line should read “n messages were received at...”.

CHAPTER 5 Creating a Web Page

If GeoView is not running, start GeoView and wait for its form to appear.

The web page to be created will have a header section and will possible links to other pages. The page can have one or more boxes. Each box can have one of the following content:

- Wind arrow
- Current arrow
- Real time columns
- Line graph
- Line graph with dual axis
- Data table
- Data statistics

The resulting page will have boxes with content resembling the images shown below:

Wind arrow



Figure 1, Wind direction and strength box type

Current arrow



Figure 2, Current direction box type

Real time columns

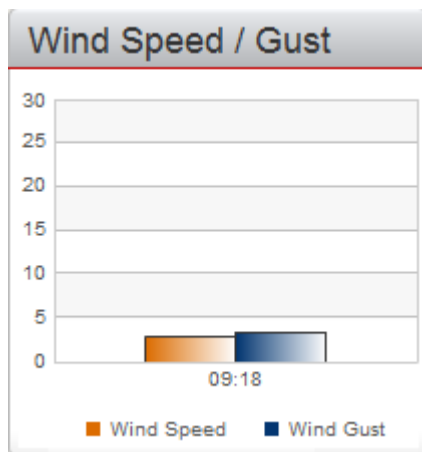


Figure 3, Real time columns

Line graph

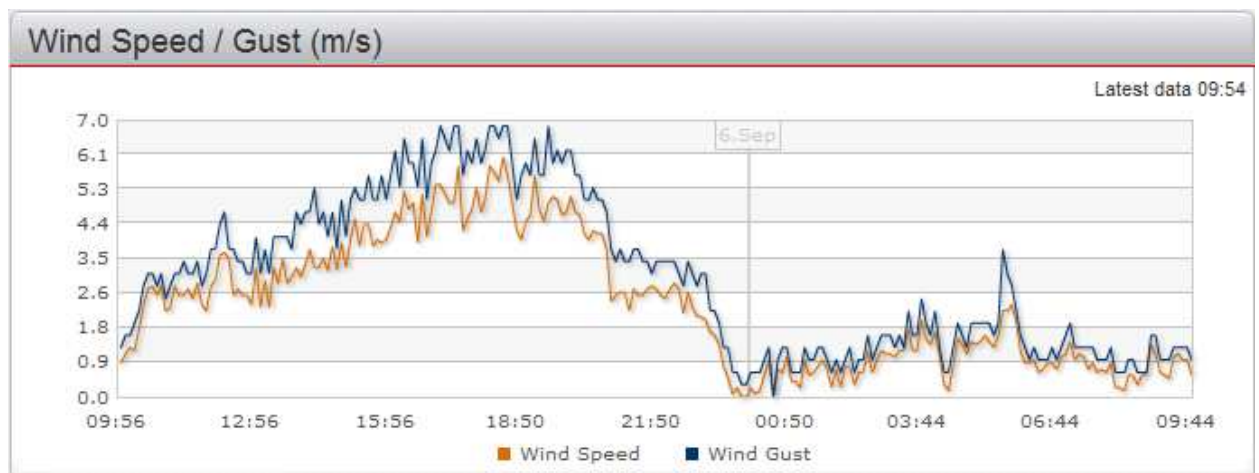


Figure 4, Line graph

Line graph with dual y-axis

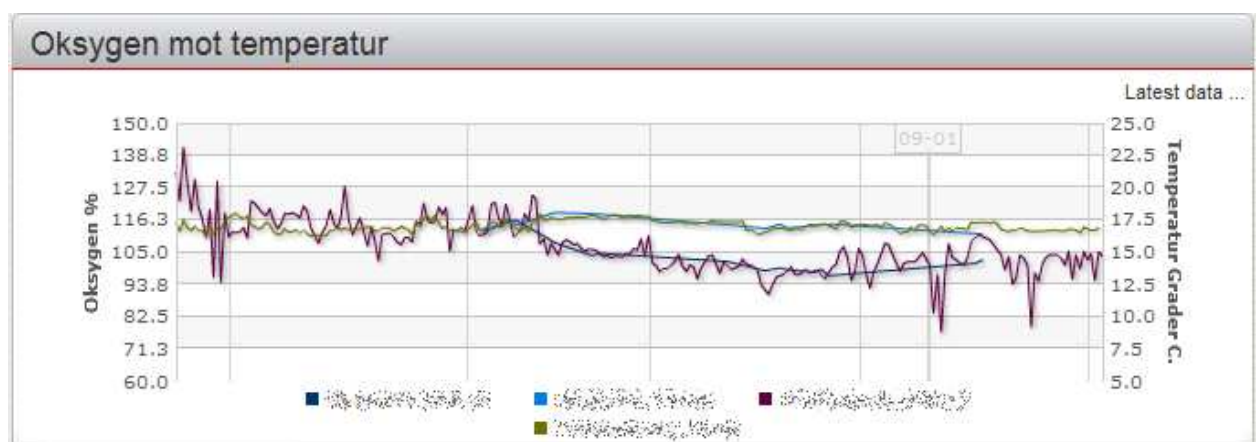


Figure 5, Line graph with dual y-axes

Data table

Tabular data			
Channels	22:24	3h	24h
Wind gust (m/s)	19.9	19.2	17.3
Wind speed (m/s)	14.8	14.4	12.8
Air temp (°C)	11.9	11.5	11.7
Relative humidity (%Rh)	97.0	95.6	95.9
Air pressure (hPa)	995	995	994
Battery voltage (V)	10.39	10.39	10.39

Figure 6, Data table

Statistics table

Statistics	
Number of data (24h)	458
Time since last dataset	4 minutes
Time of last dataset	2010-09-06 09:18

Figure 7, Statistics table

Select the “Web page creator texts”-tab. Select language to be used from the pull down menu near the bottom of the page. If the required language is not available, enter a language name, and press the button labeled “Add Language”. Enter the correct translations for every word in the upper half of the page.

Select the “Web page creator”-tab. Select required data source by using the pull down menu under “URLs to AADI web service for data”-label. The web pages that can be created will consist of a header with links to other pages, and a number of boxes. The boxes can have one of the contents listed here: Wind arrow, current arrow, real time columns, line graph, line graph dual axis, data table or data statistics. Data types will have to be linked to the content of every box. It will not be possible to make meaningful web pages until the database has data from the appropriate data loggers.

In the upper left corner, press the button labeled “Design new web page”. Use the pull down menu to use one of the available templates. Give the new webpage a name, using only normal English letters, numbers, and the underscore character. Click the OK-button. Complete the following steps to create a web page:

- Enter the text to appear in the title part of the page. Enter the text in the “Display name”-textbox.
- Check the logger or station to be used from the list of available data loggers.
- If the web page will be available at the internet, enter the external / public ip-address the pages will be available at. This address is used by the web page creator to have correct link to drill down pages.
- From the pull down menu, select the number of boxes to be shown on the web page.
- In the right hand side of the form there is a pull down menu listing all the boxes that needs details. Use menu to start filling out details for the first box. Use the “Box type” pull down menu to select box content. Every box will have a header. Please enter the header text. From the list of data types, check the data type to connect to the box content. Select data type color from the appropriate pull down menu. The available colors using the default color scheme are **Color1** (light blue), **Color2** (dark yellow), **Color3** (dark blue), **Color4** (light violet), **Color5** (light green), **Color6** (dark violet), **Color7** (dark green) and **Color8** (brown). Change decimal count and sorting order if needed.
 - If the box contains a wind arrow, the data type sequence is important. To display the box content correct, the sequence will have to be wind direction, wind speed, wind gust. Change the data type sequence for wind direction by clicking the mouse cursor in the index column, at the row for wind direction. Click the sorting index box, and enter an index number. Repeat this procedure for the wind speed, but increment the index number. Repeat the procedure for wind gust, again incrementing the index number. Select wind direction, and use the data type color drop down menu to set color.
 - If the box contains a current arrow, select one data type. Use the data type color drop down menu to set color.
 - If the box contains real time columns, continue to check the required data types. Use the data type color drop down menu to set color for each column.
 - If the box contains a line graph, continue to select number of hours of data the box shall cover and how many data samples can be expected for each data type. Check the data types to be used. Give values for y-axis minimum and maximum. If the data values are higher than maximum or if data values are lower than minimum, the y-axis will be extended. If the minimum value is set to a larger value than the maximum value, the effect of having a “best fit”-curve can be achieved.
 - If the box contains a line graph with dual y-axis, continue to select number of hours of data the box shall cover and how many data samples can be expected for each data type. Check data types to be used. Click the axis-column for each data type, and write either a P for primary axis, or write an S for secondary axis. Give values for both primary and the secondary y-axis minimum and maximum. If the data values are higher than maximum, or if data values are lower than minimum, the y-axis will be extended to show all data. If the minimum value is set to a larger value than the maximum value, the effect of having a “best fit”-curve can be achieved. Enter primary and secondary axis texts.

- o If the box contains a data table, check the data types to be included in the table. Use the decimals column to set decimals count for each data type, use the index column to determine data type sequence in the web page. The data table can have columns with calculated data, like min., max. or average values over time. Follow this procedure to add a column with calculated data:

- 1: Select statistical function from the drop down menu.
- 2: Enter number of hours the calculations shall cover.
- 3: Click the column header.
- 4: Write a column header text.

Display boxes details

http://10.99.101.117/AADI_DisplayProgram/setups/Simulator3/default.aspx
<C:\ProgramData\AADI\DisplayProgram\Simulator3.ini>

Selected box
 Properties for Box04

Box type
 Data table

Header text
 Header text

Statistical function
 AVG: Average

Hours in box
 24

Box left
 35

Box top
 586

Box width
 600

Box height
 200

Untag all

Invert all tags

Column text

Decimal count
 1

D..	I..								
1	1								
1	2								
1	3								
1	4								
1	5								
1	6								
1	7								
1	8								
1	9								
1	10								
1	11								
1	12								

Repeat this procedure to add more columns.

To delete one cell content, click the cell, then select “Delete content of cell!” from the statistical function drop down menu.

To change content of one single cell, click the cell, then set content of “Hours in box” textbox. Select required function from the statistical function drop down menu.

- o If the box contains a data statistics table, check one data type representing the data logger. The data statistics table will contain number of data latest 24 hours, time since last dataset and the time of last dataset.

- When the box content has been decided, position the box by entering box positions, height and width. Linear graph box width can be set to 0. This will make the box fill the width of the web page from the left position of the box.
- Check “Create drilldown page connected to this box” to create a drilldown from a linear line graph box.
- Check “Allow the use of cookies in drilled down pages” to make date selection in drilled down pages work for all browsers. If not checked, the date selection will work only for the Firefox browser.
- Click the “Save box properties”-button to save any changes. Or click the “Remove box”-button to remove the box.
- The title part of the page can have links to other pages. Enter the links in the “Link to other pages”-textbox. Click the “Add link”-button to add the link. The link should be written in the form “Text: relative link“. Example: if a web page named “SomePage” displays 24 hours of data and other pages have other time spans, the links could look like this (assuming that the other pages have been or will be created):
 - o SomePage (3 hours):../somepage3h/default.aspx
 - o SomePage (24 hours):../somepage24h/default.aspx
 - o SomePage (7 days):../somepage7d/default.aspx
 - o SomePage (4 weeks):../somepage4w/default.aspx
- Click “Compile code for the web page”-button to create the web pages. Inspect the web pages to see if they appear as expected. To simplify the positioning of the boxes, a few steps involving the Firefox browser can be made. Make sure the boxes are movable by checking the “Make boxes moveable”-checkbox.
 - o Generate the web page by clicking the “Create page”-button.
 - o View the generated page using the Firefox browser. Move the boxes to desired positions.
 - o Select all items of the web page by holding down the Ctrl-button and pushing the A-button. Right click the mouse, and select “View Selection Source” from the popup menu. In the “DOM Source of Selection”, under the “File” menu, select “Save Page As...”. Save the file as “default.txt” in the folder where the page under construction is located, the same folder where the “Default.aspx”-file is located.
 - o In the GeoView application, in the “Web page creator”-page, press the “Read positions”-button. The web page will now be recreated. Make the browser reload the page for a new inspection.

CHAPTER 6 Browsing the GeoView database

Start GeoView and wait for its form to appear.

Select the “AADI GeoView database browser”-tab. GeoView can read data from more than one source. The Database browser can browse data from one source at a time. Select web service corresponding to the desired data source from drop down menu of URLs to AADI web service for data. The “Data base details”-box will list all available loggers/stations. Select a logger and click the +-sign to the left of the logger name to expand and list all sensors. Logger details and sensor details will be shown in the right pane.

Click a data type to reveal data type details in the right pane. The details include time and value of the latest data.

Language specifics

The data type name and data unit can be changed or translated to another language (the language to be used is selected on the Web page creator texts-page). The language specific data type name will be used on the generated web page. Minimum and maximum allowed values can be changed, as can minimum and maximum limits for alarm. Click the “Update data base”-button to update the database.

Data type details					
Data type name	Temperature	Data type id	644		
Data type name (English)		Data unit	Deg C	Time of latest data	2010-09-03 15:15:18
Minimum allowed value	-999999	Maximum allowed value	999999	Latest data	12.4Deg C
Minimum limit for alarm	-999999	Maximum limit for alarm	999999		

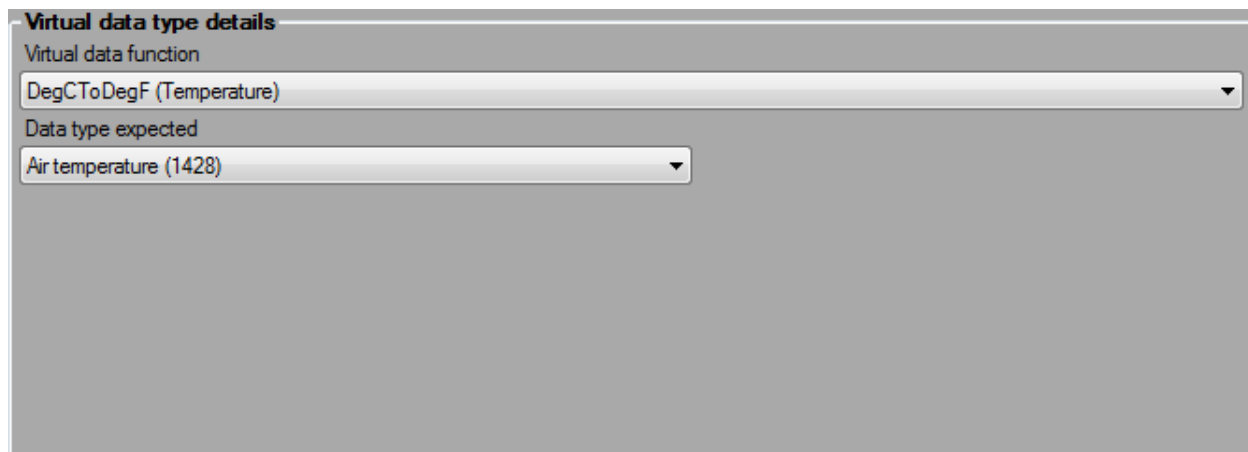
Figure 8, Data type details

Virtual data types

The database browser can be used to define virtual data types. A virtual data type is a data type derived from one or more other data types. A virtual data type can be used as any other data types in the web pages. When a virtual data type has been defined, it will be calculated every time the data type that is the base for calculating the virtual data type is entered to the data base.

To add a virtual data type press the “Add data type”-button in the “Sensor details”-box. In the “Data type details”-box enter a data type name, and also a language specific data type name. Enter a data type unit. Minimum and maximum allowed value limits can be entered, and also low and high limits for alarm.

In the “Virtual data type details”-box, use the “Virtual data function” drop down menu to select required function. Use the available dropdown menus to select input data type for the selected function and enter any required fixed values if any. Click “Update database”-button to update database.



Virtual data type details

Virtual data function
 DegCToDegF (Temperature)

Data type expected
 Air temperature (1428)

Figure 9, Virtual data type details

The following virtual functions are available. Tge function expects a number of input values, and will return a value:

AdjustedCurrentSpeed

Expects

CurrentSpeed[cm_Per_sec]

Pressure[kPa]

Salinity[ppt]

Temperature[DegC]

Returns

AdjustedCurrentSpeed[cm_Per_sec]

BarToPa

Expects

Pressure[bar]

Returns

Pressure[Pa]

DensityOfPureWater

Expects

Temperature[DegC];

Returns

RW

DensityOfWaterTS1

Expects

Temperature[DegC]

Salinity[ppt]

Returns

RTS

DensityOfWaterTSP

Expects

Temperature[DegC]

Salinity[ppt]

Pressure[kPa]

Returns

RTS

DegCToDegF

Expects

Temp[DegC]

Returns

Temp[DegF]

DegFToDegC

Expects

Temp[DegF]

Returns

Temp[DegC]

DepthFromPressure_kPa_Pa

Expects

WaterPressure[kPa]

AirPressure[Pa]

Returns

Depth[m]

PressureFromDepth_m_kPa

Expects

Depth[m]

Returns

Pressure[kPa]

EastVector

Expects

Direction[DegM]

Speed

Returns

EastVector

MperSecFromKnots

Expects

Speed[knot]

Returns

Speed[m_Per_sec]

KnotsFromMperSec

Expects

Speed[m_Per_sec]

Returns

Speed[knot]

NorthVector

Expects

Direction[DegM]

Speed

Returns

NorthVector

OxygenSalinityComp

Expects

Oxygen[uM]

Salinity[ppt]

Temperature[DegC]

Returns

Oxc[uM]

OxygenSalinityCompUMol

Expects

Oxygen[uM]

Salinity[ppt]

Temperature[DegC]

Returns

Oxc[uM]

OxygenSalinityFixed

Expects

Oxygen[uM]

Temperature[DegC]

Returns

Oxc[uM]

OxygenSaturation

Expects

Salinity[ppt]

Temperature[DegC]

Returns

Oxsat[uM]

OxygenSaturationPercent

Expects

OxygenSaturated[uM]

Returns

OxygenSalinityComp[uM]

BarFromPa

Expects

Pressure[Pa] = CHANNEL(1 , 0);

Returns

Pressure[bar]

PsiFromPa

Expects

Pressure[Pa]

Returns

Pressure[psi]

DepthFromPressure_m_kPa

Expects

Pressure[kPa]

Returns

Depth[m]

DepthFromPressure_m_MPa

Expects

Pressure[MPa]

Returns

Depth[m]

PaFromPsi

Expects

Pressure[psi]

Returns

Pressure[Pa]

Salinity

Expects

CND = Conductivity[mS/cm];

T = Temperature[DegC];

P = Pressure[kPa]/10;

Returns

Salinity[ppt]

SoundSpeedInAir

Expects

Temperature[DegC]

Returns

SoundSpeed[m_Per_sec]

SoundSpeedInSeaWater

Expects

Pressure[kPa]

Salinity[ppt]

Temperature[DegC]

Returns

Speed[m_Per_sec]

SoundSpeedInWater

Expects

Pressure[kPa]

Salinity[ppt]

Temperature[DegC]

Returns

Speed[m_Per_sec]

VirtDewPoint

Expects

Temperature[degC]

Humidity[%rH]

Returns

dewp[degC]

VirtDoubleChannel

Expects

MsChannel Most significant 10 bits

LsChannel Least significant 10 bits

Returns

combined value r

VirtTrueWind

Expects

WindDirection[deg]

BouyOrientation[deg]

Returns true wind[deg]

(WindDirection - (360 - BouyOrientation))

PiMult

Expects

Value

Returns

Value multiplied by Phi

ValueCompensation

Expects

Value

Polynom multiplier A

Polynom multiplier B

Polynom multiplier C

Polynom multiplier D

Polynom multiplier E

Returns

compensated value

$$V_c = A + B * V + C * V*V + D * V*V*V + E * V*V*V*V;$$

TrueWindSpeed

Expects

Vessel course[deg]

Course TOWARD WHICH the vessel is moving over the ground.
Referenced to true north and the fixed earth.

Vessel speed [unit*],

Speed of vessel over the ground. Referenced to the fixed earth.

Wind direction [deg],

Wind direction measured by anemometer, referenced to the ship.

Zero line reference [deg]

Angle between bow and zero line on anemometer. Direction is clockwise from the bow. (Use bow=0 degrees as default when reference not known.)

Heading [deg],

Heading toward which bow of vessel is pointing. Referenced to true north.

Wind speed [unit*]

Wind speed measured by anemometer, referenced to the vessel's frame of reference.

Unit* can be either m/s or knots or some other speed unit. Must be consistent.

Returns

TrueWindSpeed[unit*]

TrueWindDirection

Expects

Vessel course[deg]

Course TOWARD WHICH the vessel is moving over the ground. Referenced to true north and the fixed earth.

Vessel speed [unit*],

Speed of vessel over the ground. Referenced to the fixed earth.

Wind direction [deg],

Wind direction measured by anemometer, referenced to the ship.

Zero line reference [deg]

Angle between bow and zero line on anemometer. Direction is clockwise from the bow. (Use bow=0 degrees as default when reference not known.)

Heading [deg],

Heading toward which bow of vessel is pointing. Referenced to true north.

Wind speed [unit*]

Wind speed measured by anemometer, referenced to the vessel's frame of reference.

Unit* can be either m/s or knots or some other speed unit. Must be consistent.

Returns

TrueWindDirection[unit*]

CHAPTER 7 Exporting data

An application, GeoViewExport can be used to export data from the GeoView database. Please see “TN344 AADI GeoViewExport application description” for details on how to use this application.

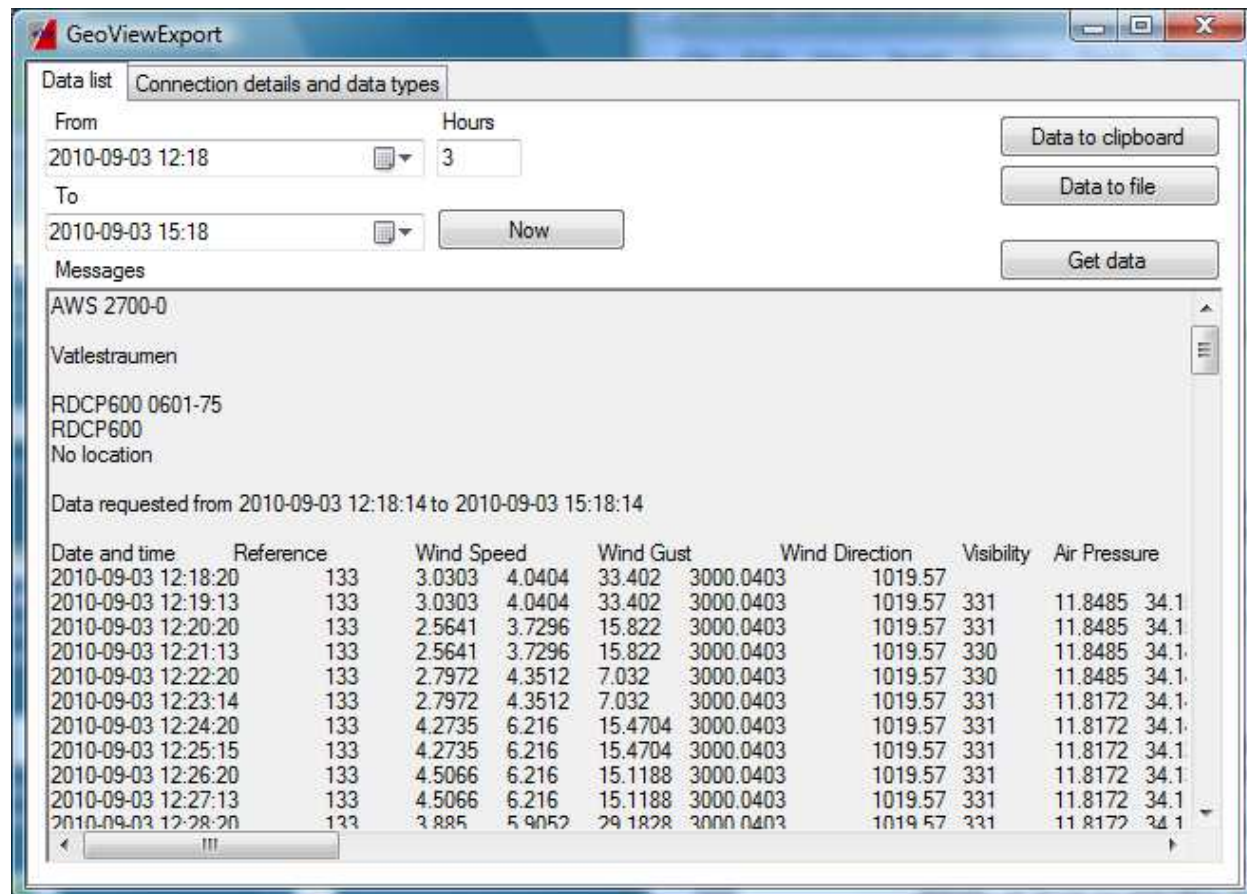


Figure 10, GeoViewExport

CHAPTER 8 GeoViewAlarm setup

An application, GeoViewAlarm can be used to give visual and audible alarm when data values exceed alarm limits. Please see “TN340 AADI GeoViewAlarm application description” for details on how to use this application.

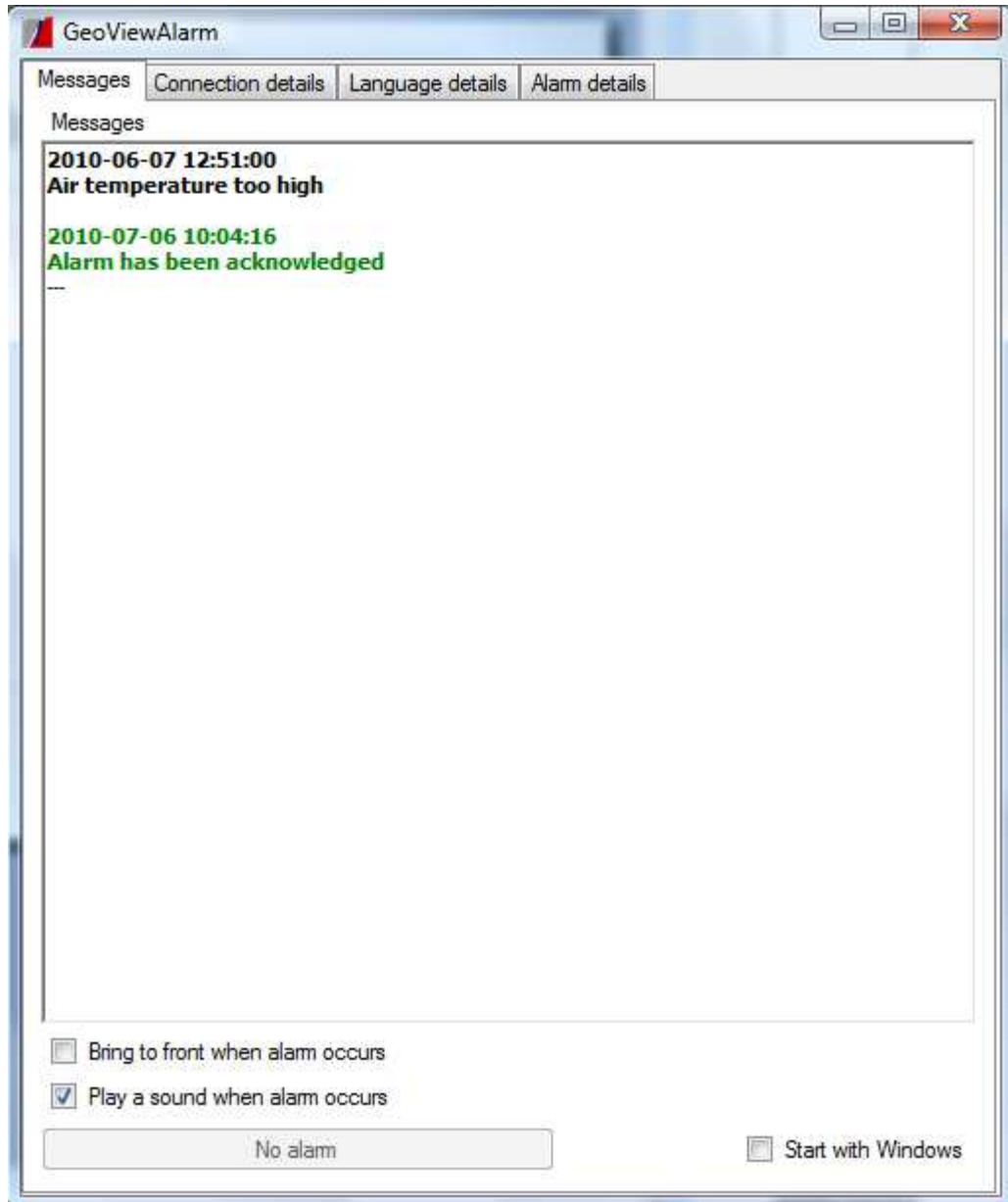


Figure 11, GeoViewAlarm